

Claims

1. A method for decomposing H₂O₂ comprising, passing said H₂O₂ over an activated catalyst, said activated catalyst having a porous base, said porous base being doped with a calcined cation selected from the group consisting of Mn, Ag, Ru, Pb, V, Cr and Co, said base being monolithic or being divided into particles which are closely packed into a container.
2. The method of claim 1 wherein said base is also doped with at least one catalytic promoter, selected from NH₄⁺ and Groups I and II of the Periodic Table.
3. The method of claim 2 wherein said promoter is selected from the group consisting of K⁺, Na⁺, NH₄⁺, Li⁺, Sr⁺ and Ba⁺.
4. The method of claim 1 wherein said activated catalyst is formed into a pack of a shape selected from the group consisting of cylindrical, conical, tubular and a combination thereof.
5. The method of claim 1 wherein said activated catalyst is in granules and is poured into a vessel communicating with a pressurized H₂O₂ storage tank and packed in said vessel for contact with and decomposition of, said H₂O₂ as needed, which vessel is vented to discharge the products of decomposition.
6. The method of claim 1 wherein said activated catalyst is contacted with said H₂O₂ in a vehicle having an exhaust nozzle for discharging the decomposition products of said H₂O₂ to propel said vehicle.
7. A method for decomposing H₂O₂ comprising,
 - a) mixing a soluble salt of a catalyst cation into solvent therefor to form a mixture of cations, the cation species being selected from the group consisting of Mn, Ag, Ru, Pb, V, Cr and Co,
 - b) contacting said mixture with a porous [monolithic] ceramic catalyst carrier in an amount sufficient to impregnate said catalyst carrier over the surfaces thereof,
 - c) drying the so impregnated carrier so as to remove solvent therefrom,
 - d) calcining said carrier so as to form a bulk or activated catalyst, said base being monolithic or being divided into particles which are closely packed into a container, and
 - e) contacting said catalyst with H₂O₂ to decompose same.
8. The method of claim 7 wherein at least one catalytic promoter, selected from NH₄⁺ and Groups I and II of the Periodic Table, is added to said solvent.
9. The method of claim 8 wherein said promoter is selected from the group consisting of K⁺, Na⁺, NH₄⁺, Li⁺, Sr⁺ and Ba⁺.

10. The method of claim 7 wherein said ceramic catalyst carrier is of a material selected from the group consisting of aluminosilicates, alumina, and silica.
11. The method of claim 7 wherein said cation is loaded on said catalyst carrier in a range of .01 to 20.0 wt. %, metals basis.
12. The method of claim 7 wherein said catalyst carrier is calcined at 150 to 950 °C.
13. The method of claim 7 wherein said porous ceramic carrier is in the form selected from the group consisting of a monolith, honeycomb or chunks, extrudate, pieces, pellets, spheres, herein particles, and a combination thereof closely packed.
14. The method of claim 7 wherein the calcined carrier is contacted with said H₂O₂ in a vehicle having an exhaust nozzle for discharging the decomposition products of said H₂O₂ to propel said vehicle.
15. The method of claim 14 wherein said vehicle is a rocket.
16. The method of claim 14 wherein said vehicle is selected from the group consisting of a land vehicle, a water vehicle, an aircraft and a spacecraft.
17. The method of claim 14 wherein the decomposition products of said H₂O₂ are contacted with fuels selected from solid or liquid propellants in a rocket.
18. A method for decomposing H₂O₂ comprising contacting at least one cation with surfaces of a porous ceramic carrier and calcining same to form a bulk or activated catalyst, said base being monolithic or being divided into particles which are securely packed into a container, the cation species being selected from the group consisting of Mn, Ag, Ru, Pb, V, Cr and Co and contacting said catalyst with H₂O₂ to decompose same.
19. The method of claim 18 wherein said carrier has added thereon at least one catalytic promoter, selected from NH₄⁺ and Groups I and II of the Periodic Table.
20. The method of claim 19 wherein said promoter is selected from the group consisting of K⁺, Na⁺, NH₄⁺, Li⁺, Sr⁺ and Ba⁺.
21. The method of claim 20 wherein the cation loading on the catalyst carrier is .01 to 20.0 wt. % of the bulk catalyst.